

PERFORMING SYSTEM BACKUPS (OSA-8)

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TABLE OF CONTENTS

OVERVIEW 1

EXPLANATION OF DBBACKUP BACKUPS 1

SCHEDULING BACKUPS..... 2

 Minimum Recommended Backup Schedule3

 Media Requirements4

 Monthly System Shutdowns4

RUNNING THE BACKUP UTILITY 5

PERFORMING SYSTEM BACKUPS

OVERVIEW

System backups copy data from a centralized server or remote system to a storage medium. Each district is encouraged to develop a comprehensive information systems backup plan.

Backups are used to restore:

- Data that has become corrupted.
- Data that has been inadvertently deleted.
- All or part of an application database should the system shut down during critical processing.
- The server operating system and application data in the event of a system failure or disaster.

A regular backup schedule for the RS6000 Application File Server **MUST** be developed to avoid the possible loss of critical financial information. This document outlines a **MINIMUM** backup schedule for that server.

The **Financial Management System Backup (dbbackup)** utility has been installed on each district RS6000 Application File Server to simplify the process of performing system backups. This document provides instructions for running the backup utility.

EXPLANATION OF dbbackup BACKUPS

Daily Backup

Backs up the entire /fms partition (MUNIS programs and data files). It should be run Monday through Thursday at the end of the work day and before any major MUNIS processing (i.e., Month-end payroll). Daily backups, if done properly, will give you a complete day-to-day archive of MUNIS processing and enable you to restore back to a certain point in the week, if problems arise.

Weekly Backup

Backs up the entire IBM RS6000, including MUNIS and the operating system. This backup should be performed on Friday at the end of the day and may require two tapes. Weekly backups give you a week-to-week archive of the system and enable you to restore any system file(s) in case of emergencies.

Monthly Backup

Backs up the entire IBM RS6000 (same as weekly) except this option creates a “bootable” or “mksysb” tape. This tape contains information that will boot your IBM RS6000 without using the hard drive. This backup enables you to use the tape for disaster recovery (i.e., hard drive failure). Monthly backups should be performed after month-end processing. If your

IBM RS6000 has more than one hard drive, you will need to perform a daily backup along with the monthly for archival purposes.

The monthly backup is a disaster recovery tool and should not be depended upon to restore MUNIS information. Daily and weekly backups should be used to restore MUNIS information. Monthly backups MUST be performed each month. If your system should go down for any reason, you will be required to have a “mksysb” backup not more than 30 days old. If your last “mksysb” backup tape is older than 30 days, you will experience unnecessary down time (possibly several days).

How to Label Dbbackup Tapes

Backups are performed for various reasons, and that should be reflected in the way the backup tape is labeled. Some common elements that should be found on all tapes are the date the tape was made, what is on the tape (i.e., DBBACKUP OPTION #1), and the reason for the backup (i.e., DAILY SAVE).

SCHEDULING BACKUPS

To avoid the possible loss of critical financial information, a regular backup schedule for the RS6000 financial server MUST be developed. Staff should be formally assigned responsibility for completing those backups. A backup schedule for the RS6000 should include, at a minimum, daily, weekly, monthly and yearly backups. Backups should also be performed immediately following critical processing throughout the year.

Backup tapes should be stored in secure locations both on-site for easy accessibility and off-site to provide maximum protection in the event of a disaster. The off-site storage location must be in a separate building sufficiently distant from the RS6000 financial server location that it would not be impacted by a disaster at the server location. A rotation schedule for backup tapes should be carefully developed to ensure that several generations of backups are maintained. Districts may choose to rotate tapes between off-site and on-site usage.

A minimum recommended backup schedule for the RS6000 financial server is outlined below. Following this schedule will ensure that the loss of financial data will not exceed one (1) day of information unless the district experiences a disaster that results in the loss of all on-site backup tapes. In that event, the above recommended procedures will result in a loss of financial data not exceeding five (5) days of information.

Minimum Recommended Backup Schedule

To Backup	Frequency	dbbackup Menu Option(s)	# Tapes for Model 250	# Tapes for Model 220	Storage Location
MUNIS	Nightly (Mon. -Thurs.)	1	8	4	On-site
MUNIS	Weekly (Friday) Monthly, and Annual	3	4	2	On-site/ Off-site*
Full System (mksysb**)	Monthly	3 and 5	4	2	On-site/ Off-site*
Full System (mksysb**)	Calendar Year	3 and 5	4	2	On-site/ Off-site*
Full System (mksysb**)	Fiscal Year	3 and 5	4	2	On-site/ Off-site*
	Extra Tapes		2	1	
TOTAL # OF TAPES			26	13	

*Run backup twice to produce a set of tapes for both on-site storage and off-site storage.

****mksysb** - For those systems having only **one hard drive**, mksysb (Option #5) makes a bootable backup tape of the entire **RS6000 operating system and data**. For those systems **having more than one hard drive**, mksysb makes a bootable backup **ONLY of the RS6000 operating system**. **The mksysb option (#5) DOES NOT BACKUP MUNIS DATA ON SYSTEMS WITH MORE THAN ONE HARD DRIVE!** It is therefore imperative that districts with systems containing more than one hard drive do backups using options #1 and #3 and monthly disaster recovery backups using option #5. Otherwise, MUNIS financial data could be lost in the event of a system failure.

Districts which have purchased new systems containing more than one (1) hard drive should be aware that standard KETS configuration(s) entail putting the operating system on the first hard drive (hdisk0 - rootvg) and the MUNIS financial data on the second (hdisk1 - datavg). Mksysb (bootable) backups only backup the rootvg volume group which means that only the first hard drive in a system (i.e. hdisk0) is backed up on a mksysb backup. Therefore the only options in the dbbackup utility which backup your MUNIS information are the Daily and Weekly options (#1 & #3).

Media Requirements

Tapes

Depending on the type of tape drive on the RS6000, the following tapes are used:

Quarter inch (1/4") cartridge (QIC) tapes model 9100 (1GB storage); or

4mm data cartridge, 120 meters; or

8mm data cartridge, DL 112 meters.

Cleaning Tapes

Districts should purchase a "cleaning" tape for the tape drive on the RS6000. It is recommended that the tape drive be cleaned AT LEAST once a month before performing the monthly backup.

Monthly System Shutdowns

The RS6000 financial server should be shut down completely and brought back up (rebooted) at least once a month. This procedure will stop any runaway processes that are unnecessarily utilizing system resources. It is recommended that the system be shut down immediately before performing the monthly backup operation.

To shut down the RS6000 financial server:

1. Ensure that no one is using the system by typing the following command at the shell (\$) prompt:

who (Press **Enter**.)

A list of users currently logged into the system will be displayed.

2. Request that all users log off the system by issuing the following command at the shell prompt:

wall

- i. Press **ENTER** and type in a message requesting the users to log off the MUNIS system.
- ii. Press **CTRL** and **D** to end the message.

The request will be transmitted to all users currently logged on to the system.

Provide users time to exit the system. **Repeat step 1 to make sure that all users have exited the system before shutting down the server.**

3. Shut down and reboot the server by typing the following command at the shell prompt:
shutdown -Fr

RUNNING THE BACKUP UTILITY

The dbbackup utility is menu driven to simplify the process of performing backups. The utility provides menu options that automatically initiate the appropriate backup process for daily and weekly backups. It also provides a menu option for performing backups of the entire system (mksysb). Full system backups should be performed at least once a month.

NOTE: *It is recommended that monthly backups be scheduled immediately after month end processing is completed.*

The dbbackup utility includes menu options for viewing the contents of backup tapes. Making this step a critical part of daily backup procedures will ensure that the backup process completes successfully and that a usable backup tape is available for restoring the system should it become necessary.

Option 7 on the dbbackup menu allows the user to Review Munis Backup Strategy instructions online for assistance in developing a backup schedule.

Accessing the dbbackup Menu

Access to the dbbackup utility is restricted to the "**root**" user and to the "**dbbackup**" user. The "**dbbackup**" user can access the dbbackup utility and run Option 1 (Daily Backup) only. The "**root**" user has complete access and user permissions. Staff responsible for performing backups must be provided with user permissions appropriate for their assigned tasks.

Before starting a backup, ensure that no one is using the MUNIS application:

1. At the shell prompt type the following command:

who (Press **Enter**.)

A list of users currently "logged on" will be displayed.

2. Users still logged on to the MUNIS application should be requested to log off by issuing the following command at the shell prompt:

- i. **wall**

- ii. Press **Enter**. Type in a message requesting the users to log off from the MUNIS application.

- iii. Press **CTRL** and **D** to end the message

The request will be transmitted to all users currently logged on to the system.

Provide users time to exit the system. **Repeat step 1 to make sure that all users have exited the system before starting a backup.**

3. Login as "**root**" (or "**dbbackup**") on the IBM RS6000 (UNIX) server console and type the following command at the shell prompt.

dbbackup (lower case only) (Press **Enter**.)

The following menu screen will display:

Financial Management System Backup Utility (dbbackup)	
1)	Daily Backup of Financial Application-Database to Tape (Monday through Thursday)
2)	View contents of tape created with option 1
3)	Complete Backup of Financial Application-Database to Tape (Weekly-Friday / Monthly / Annual) (Not a mksysb backup)
4)	View contents of tape created with option 3
5)	Perform a mksysb backup of the entire system (Monthly)
6)	View contents of tape created with option 5
7)	Review Munis Backup Strategy
E)	Exit
<p style="text-align: center;">— N O T E —</p> <p>Nobody should be using Munis Database while backing up (Users may be logged on when viewing tape contents.) Options 1,3,& 5 erase any previous information on tape. Tape should be inserted before selecting options 1-5</p>	

NOTE: *Make sure a tape is inserted in the "Tape Drive" of the IBM RS6000 (UNIX) Server before selecting a backup option from the menu screen. The backup process erases any existing information on the tape(s) being used for backups.*

To	Select Option
Perform a Nightly Backup (Monday - Thursday)	1
View contents of Nightly Backup tape (created with option 1)	2
Perform a Weekly (Friday), Monthly / Calendar year / Fiscal year MUNIS backup	3
View contents of Weekly Backup tape (created with option 3)	4
Perform a Monthly / Calendar year / Fiscal year backup of the entire system (mksysb)	5
View contents of Monthly/Calendar Year/Fiscal Year Backup tapes of the entire system - mksysb (created with option 5)	6
Review MUNIS Backup Strategy (Informational)	7
Exit the utility	E